DETERMINATION OF RADIUM 226 IN URANIUM BEARING REFERENCE MATERIALS FOR CERTIFICATION PURPOSES

FINAL REPORT

BY

SASKATCHEWAN RESEARCH COUNCIL

Work on this project was conducted under the auspices of the Canada Centre for Mineral and Energy Technology, Energy, Mines and Resources, Canada.

DSS FILE NUMBER : 17SQ.23440-2-9064-3
DSS CONTRACT SERIAL NUMBER : OSQ82-00087
CANMET PROJECT NUMBER : 380001
CANMET SCIENTIFIC AUTHORITY: Dr. C.W. Smith

3 pp

February 22, 1983

AUG 19 1983
MICROMEDIA

SASKATCHEWAN RESEARCH COUNCIL

30 CAMPUS DRIVE • SASKATOON • SASKATCHEWAN • CANADA • S7N 0X1 • Tel. 306/664-5400 • TELEX 074-2484

Science Serving Saskatchewan

February 22, 1983

Dr. C.W. Smith
E.M. and R. Canada
Canada Centre for Mineral Technology
555 Booth Street
Ottawa, Ontario
K1A 0G1

Dear Clint:

Sorry for the delay. Things are as hectic as ever around the lab. The results for the Ra-226 measurements on the ores are as follows:

Sample	Sample Size	Total Counts (approx.)	Bq/g
DH-1a	1 g	195,000	32.9
DH-1a	1 g	190,000	31.8
DH-1a	1 g	185,000	31.3
DH-1a	1 g	190,000	32.4
DL-1a	1 g	7,000	1.39
DL-1a	1 g	7,000	1.38
DL-1a	1 g	8,000	1.52
DL-1a	1 g	8,000	1.49
BL-4a	1 g	95,000	15.9
BL-4a	1 g	100,000	17.0
BL-4a	1 g	95,000	16.3
BL-4a	1 g	90,000	15.1
BL-4a	1 g	90,000	14.8
BL-5	1 g	4.5×10^6	821
BL-5	1 g	5.5×10^6	934
BL-5	1 g	4.5×10^6	824
BL-5	1 g	4.5×10^6	843
BL-5	1 g	5.0×10^6	859
BL-5	1 g	5.5×10^6	896

...2

The full 1 gram sample was used as the aliquot for each determination. Samples were treated with $HF-H_2SO_4$ after addition of Ba-133 tracer and then fused with potassium pyrosulfate. The fused melt was dissolved in dilute nitric acid and then $PbSO_4$ was precipitated. The lead sulfate was dissolved in EDTA, then $BaSO_4$ was precipitated. This was redissolved, reprecipitated and finally, filtered for counting. The Ba-133 recovery was determined by gamma counting and then gross alpha was measured. The NBS calibration source was 4953-C, corrected for decay. The range of standards used for calibration was 0.004 Bq to 33 Bq. The mean response for multiple standards was used in determining the calibration factor. Calibrations and sample analyses were performed by Verda Penner and Reinhold Ortlepp.

I hope this covers everything Clint, if not please give me a call at (306)664-5439.

Yours truly,

Gene Smithson

Gene Smithson
Head, Analytical Services Section

GS/ldd